

Docket Number 06-SPPE-2
First Round Data Requests
El Centro Unit 3 Repower Project
July 2006

DATA REQUEST #19
TRANSMISSION SYSTEM ENGINEERING

BACKGROUND

The SPPE's short circuit study states,

"...92 kV circuit breakers with a 63kA interrupting rating should be used for the ECGS Unit #3 interconnection. Future system expansion plans will result in a further increase of the short circuit duty."

Staff is concerned that breaker ratings may or may not be adequate for symmetrical faults (three-phase faults) depending on the aging and present condition of the existing breakers, and for asymmetrical faults (line-to-ground faults) existing breaker ratings (40,000 Amps) may not meet industry standards or American National Standards. Staff is also not confident that the System Impact Study included a complete transient stability study and post-transient voltage analysis.

DATA REQUEST

19. The study did not include a Post-transient Voltage analyses report. Please explain whether or how the inclusion of this report would affect the conclusions of the study.

DATA RESPONSE

The SIS examined the interconnection of the new generating facility; however, post-transient analysis was not included in the SIS. Typically, post transient for generation projects of this magnitude (100 MW or less) is only included if known voltage issues exist (primarily from reliability studies). An analysis of the contingencies performed from the power flow and transient stability portion of the studies is conducted to review the highest voltage deviation or lowest voltage dip to determine the next steps that may require additional review via a post-transient analysis.

IID has conducted multiple studies over the last few years to determine the acceptable level of post-transient reactive margin. The addition of new generation facilities typically "help" reactive post-transient related problems by supplying needed reactive compensation to the system; ideally when located closer to load centers to reduce the transmission line loadings (higher line loadings typically also tend to increase reactive losses).

From a regional perspective, IID typically will review the loss of the Palo Verde-Devers 500-kV line as a critical outage for post transient, as the system is more heavily loaded from the addition of the Palo Verde and Mexico border area

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generation projects. For the loss of the Palo Verde-Devers 500-kV line, the Southern California Edison (SCE) system becomes heavily burdened with voltage deviations, and tends to bring the IID system along to “ride through” the first 15 minutes while rescheduling occurs. The incremental flow on the parallel Palo Verde-North Gila-Imperial Valley line flow for this contingency increases substantially, and causes the IID system to see a significant flow through its system from Imperial Valley to the Mirage/Devers system.

As an informational response to this data request, IID has conducted the post-transient analysis for selected buses, pre- and post-Project, and for the loss of Palo Verde-Devers 500-kV line for the pre- and post-Project scenarios. The results of this analysis (reactive margin and voltage deviation) are shown in the table in Attachment J.

The findings from this additional analysis support the fact that IID has sufficient margin and less than 5% voltage deviation at all buses for the loss of the Palo Verde-Devers 500-kV line. In conclusion, the inclusion of post-transient analysis for the El Centro Unit 3 Repower Project would not impact the conclusions of the SIS to ensure that the interconnection does not adversely affect the IID and interconnected transmission system.

ATTACHMENT J
TRANSMISSION SYSTEM ENGINEERING
REACTIVE MARGIN AND VOLTAGE DEVIATION
TABLE